

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of	)	
	)	
Amending the Definition of Interconnected VoIP Service in Section 9.3 of the Commission's Rules	)	GN Docket 11-117
	)	
Wireless E911 Location Accuracy Requirements	)	PS Docket No. 07-114
	)	
E911 Requirements for IP Enable Service Providers	)	WC Docket No. 05-196
	)	

**COMMENTS**

**I. Introduction**

Sprint Nextel Corporation ("Sprint") hereby respectfully submits its initial Comments in response to the Commission's *Notice of Proposed Rulemaking, Third Report and Order, and Second Further Notice of Proposed Rulemaking* in the above-captioned proceeding.<sup>1</sup> Sprint applauds the Commission's efforts to more closely examine the need for changes to its 911 regulations as they pertain to Voice over Internet Protocol ("VoIP") carriers, particularly in light of the recent growth in subscribership to these services. Sprint also recognizes the importance of exploring issues related to the provision of automatic location information by VoIP providers. Sprint recommends, however, that the Commission refer the complex issues associated with automatic location accuracy to industry standards groups before adopting general location

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<sup>1</sup> Amending the Definition of Interconnected VoIP Service in Section 9.3 of the Commission's Rules, Wireless E911 Location Accuracy Requirements, E911 Requirements for IP Enabled Service Providers, *Notice of Proposed Rulemaking, Third Report and Order, and Second Further Notice of Proposed Rulemaking* (Released July 13, 2011) ( "*NPRM, Third R&O, and Second FNPRM*").

accuracy governing principles. With respect to wireless location accuracy, Sprint supports the Commission's decision to refer issues relating to indoor location accuracy to the Communications Security, Reliability and Interoperability Council ("CSRIC") for further study and recommendations.

## **II. Applying E911 Rules to Outbound-Only Interconnected VoIP Service Providers**

As the Commission has noted, VoIP services have grown significantly in popularity, and a number of companies are offering a variety of "one-way" interconnected VoIP services that enable inbound calls from the public switched telephone network ("PSTN") or outbound calls to the PSTN, but not both.<sup>2</sup> The Commission seeks comment on whether to extend 911 obligations to outbound-only interconnected VoIP service providers.<sup>3</sup> The Commission also seeks comment regarding consumers' expectations for being able to contact emergency personnel when using outbound-only interconnected VoIP services.<sup>4</sup> Sprint would not be surprised if most consumers expect that if they can place an outgoing call, they will be able to dial 9-1-1 to reach emergency services personnel. These same consumers may also expect that they would be able to receive a call back from the PSAP when needed. It is possible, however, there may be circumstances where a PSAP will be unable to call the calling party back due to technology limitations.

Therefore, even though Sprint generally supports the idea of improved 911 connectivity, it would urge the Commission to also consider the possibility of creating false call-back expectations. The Commission also seeks comment regarding consumers' expectations when they are using an inbound-only service.<sup>5</sup> Sprint does not believe that consumers will expect to be

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<sup>2</sup> *NPRM, Third R&O, and Second FNPRM* at par. 48.

<sup>3</sup> *Id.* at par. 48.

<sup>4</sup> *Id.*

<sup>5</sup> *Id.* at par. 48

able to call 911 if they subscribe to a service that is offered as an inbound-only service. Sprint generally supports extending 911 obligations to outbound-only interconnected VoIP services so there is regulatory parity between VoIP services and other telecommunications services.

The Commission also seeks comment on how the definition of interconnected VoIP service should be changed if 911 requirements are extended to outbound-only interconnected VoIP service providers.<sup>6</sup> Specifically, the Commission seeks comment on whether to extend 911 requirements to any service that (1) enables real-time, two-way voice communications; (2) requires an Internet connection from the user's location; (3) requires Internet protocol-compatible customer premises equipment; and, (4) permits users to terminate calls to all or substantially all United States E.164 telephone numbers.<sup>7</sup> Sprint recommends revising prong two of the definition to state: "(2) requires a communication connection supporting Internet Protocol from the originating user's location." This change is necessary to ensure regulatory parity so that providers of interconnected VoIP are covered whether or not the connection used to deliver the service rides on the public Internet. In addition to VoIP services offered over the public Internet, there are currently a number of residential and business class VoIP services offered using Internet Protocol that do not ride over the public Internet. With respect to prong four of the proposed definition, Sprint believes this prong should state: "(4) permits users to terminate calls to United States E.164 telephone numbers." This language would prevent a provider from avoiding the requirements because their customers cannot call *all* or *substantially all* United States E.164 telephone numbers.

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<sup>6</sup> *NPRM, Third R&O, and Second FNPRM* at par. 49.

<sup>7</sup> *Id.* at par. 51.

The Commission also seeks comment on whether it should amend the definition of interconnected VoIP service for 911 purposes only or whether the new definition should be used for any regulatory purpose.<sup>8</sup> Sprint cautions the Commission to ensure all potential ramifications are considered before using the revised definition in other regulatory contexts. In particular, Sprint does not believe it would be appropriate to use the proposed definition in the context of wireless/commercial mobile radio service (“CMRS”) regulations.

### **III. Automatic Location Requirements for Interconnected VoIP Services**

As the Commission acknowledges, “...commenters generally agree that at this time there is no technological or cost-effective means to provide automatic location information (“ALI”) for interconnected VoIP service providers.”<sup>9</sup> The Commission seeks comment, however, on whether it should adopt proposed general location accuracy governing principles that could be applied to interconnected VoIP service providers and over-the-top VoIP service providers but that would allow both types of providers the flexibility to develop technologically-efficient and cost-effective solutions.<sup>10</sup> Sprint does not believe it is necessary at this time to move forward with adopting proposed general location accuracy governing principles.<sup>11</sup> Sprint believes the Commission should allow VoIP providers, network providers, device manufacturers, and application developers the flexibility to continue their efforts to develop technologically-efficient and cost-effective solutions. Sprint also shares concerns expressed by others that standards have

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<sup>8</sup> *Id.* at par. 51 and 101.

<sup>9</sup> *Id.* at par. 64.

<sup>10</sup> *Id.* at par. 72.

<sup>11</sup> Although Sprint does not believe it would be appropriate to adopt governing principles at this time, should the Commission move forward with this approach, Sprint would urge the Commission to consider a timeframe of seven to ten years, due to the technological challenges and the necessary coordination between parties, which are often competitors.

not been developed for the automatic delivery of ALI information by VoIP providers<sup>12</sup> and until such standards are developed, governing principles may be premature. Sprint recommends that this issue be referred to industry standards groups for development of technical standards.

There is currently no single methodology for providing automatic location information. VoIP 911 calls may use a completely different methodology in determining location than wireless E911 calls. If the Commission's ultimate goal is to require VoIP providers to meet location accuracy requirements that approximate the wireless handset-based location accuracy requirements, technical standards must be developed for VoIP to meet such requirements.

In addition, currently there is no single standard for delivering location information to a public safety answering point ("PSAP"). As a result, in some networks, location information must be pulled from the network while in other cases the network pushes information to the PSAP. As networks evolve toward Next Generation E911 ("NG911") and new technologies evolve (including new VoIP technologies), standards must be defined to describe how different technologies will interconnect with PSAPs, what methodologies should be used to obtain location information, and how PSAPs will handle location reports from multiple access networks arriving at different times with varying levels of accuracy for a single NG911 call.

Industry standards groups should be involved with developing appropriate technical standards and defining terms pertaining to location accuracy for VoIP. For example, the industry has not yet agreed on how the term "location" should be defined, and this issue should be addressed by standards groups. Sprint asserts that the definition of "location" should correlate to

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<sup>12</sup> See Comments of Qwest at 5-6, filed in response to the *Notice of Inquiry*.

the subscriber/user's geodetic location (latitude and longitude) rather than the street address as contained in the Master Street Address Guide ("MSAG").

The need for extensive coordination between multiple independent business entities also raises significant issues that must be resolved. The standards for delivering emergency location information between separate access and VoIP service providers that do not have an established business relationship have not been developed. Issues related to coordination between the parties must be addressed before any regulatory requirements, or even governing principles, are established. For example, an underlying access provider would need to be able to validate location information requests received from an over-the-top service provider from a security perspective to determine whether a location request is truly an emergency request and not a "Trojan" type of request, intended to track the subscriber for other purposes.

From the VoIP provider's perspective, the VoIP provider would need to be able to verify that the location information received is an authenticated location. From a liability perspective, a number of issues would need to be resolved. In addition, potential confidentiality and privacy issues related both to the end user (such as customer proprietary network information or "CPNI") and the service provider would also need to be addressed. For example, an over-the-top provider would not want to disclose information about its end-users to the underlying access provider and may in fact be prohibited from providing certain information. Other basic coordination issues must also be resolved, such as which entity is responsible for determining the proper PSAP for routing the call and which entity is responsible for location accuracy.

The Commission also seeks detailed comment on the relative merits of any potential solutions, including the degree of location accuracy, the cost of implementing the location solution, the degree of coordination required to implement the solution, to which types of VoIP

service providers the location systems would apply (*e.g.*, interconnected VoIP, outbound-only interconnected VoIP, "over-the-top" VoIP, etc.) and any other limitations that may be relevant.<sup>13</sup>

Sprint is not familiar with any current technologies that allow service providers to provide ALI for nomadic VoIP users to PSAPs without end-user involvement. Although there may be technologies that can detect a change in location, these technologies still prompt the end-user to update their location. Sprint is not aware of any technological or cost-effective means to provide ALI for interconnected VoIP service providers.

Not all telephony systems have embedded or external location technology as part of their offerings, and this is not likely to change for some time. Even where location technology is present, it may not provide a sufficient level of location accuracy in all environments. In order to achieve location accuracy that closely approximates the wireless handset-based requirement, VoIP providers will most likely need to utilize global positioning system ("GPS") technology in their devices. Because GPS location technology requires line-of-site communication to three satellites to obtain an accurate location, however, this technology has known limitations in indoor locations and locations where a device does not have access to clear sky. In the event VoIP providers move toward including GPS technology in devices, a phased-in approach would be needed and standards for this approach would need to be developed.

The Commission seeks comment on whether liability protections should be expanded in light of proposed changes to its rules.<sup>14</sup> Sprint strongly urges the Commission to ensure that both the underlying network access provider and the over-the-top VoIP service provider are afforded liability protections. As discussed above, coordination between access providers and over-the-

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<sup>13</sup> *NPRM, Third R&O, and Second FNPRM* at par. 73.

<sup>14</sup> *Id.* at par. 77.

top VoIP providers will be necessary if automatic location requirements are extended to VoIP providers and complex issues will arise as a result. Sufficient liability protection must be afforded to the all parties involved in the provision of location information.

#### **IV. Indoor Location Accuracy**

As Sprint discussed in its earlier Comments filed in response to the Commission's *Further Notice of Proposed Rulemaking and Notice of Inquiry*,<sup>15</sup> Sprint does not believe it is appropriate at this time to adopt indoor location accuracy testing requirements.<sup>16</sup> In the *NPRM*, *Third R&O*, and *Second FNPRM*, the Commission asks whether outdoor testing methodologies can be used in indoor environments, or whether the standards for outdoor and indoor location accuracy testing should be different.<sup>17</sup> Sprint recommends looking to the Technical Report issued by The Alliance for Telecommunications Industry Solutions' ("ATIS") Emergency Services Interconnection Forum ("ESIF") to address these questions.<sup>18</sup> In addition, the Commission asks whether traditional sampling and drive-testing methods used for outdoor testing are appropriate for indoor testing, or whether new testing methodologies are needed that are tailored to indoor environments.<sup>19</sup> Sprint asserts that new testing methodologies will be needed tailored specifically to indoor environments. Indoor testing will need to take into account various structural elements not contemplated for testing in outdoor environments. Testing results will vary based on the type of construction material (wood, steel, etc.) as well as the level or floor within the structure. Indeed, even obtaining an independent measurement of latitude and

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<sup>15</sup> *Further Notice of Proposed Rulemaking and Notice of Inquiry*, 25 FCC Rcd 18957 (2010) (*Location Accuracy FNPRM and NOI*).

<sup>16</sup> Comments of Sprint at pg. 7-8.

<sup>17</sup> *NPRM*, *Third R&O*, and *Second FNPRM* at par. 87.

<sup>18</sup> ATIS-0500013: Approaches to Wireless Indoor Location Performance Testing (issued February 2010).

<sup>19</sup> *NPRM*, *Third R&O*, and *Second FNPRM* at par. 87.



longitude within a building as a baseline for testing may be a challenge. Because of the challenges that exist in indoor testing environments, Sprint fully supports the Commission's decision to refer the issue of indoor testing to CSRIC for further study and technical recommendations.

## **V. Location-Capable Broadband Voice Technologies**

The Commission seeks comment on whether it should encourage mobile service providers to enable the use of commercial location-based services for emergency purposes.<sup>20</sup> The Commission also seeks comment on whether operational benchmarks should be developed to assist consumers in evaluating the ability of carriers to provide precise location information for emergency purposes based on the location-based capabilities of devices.<sup>21</sup> Sprint does not believe such operational benchmarks would be useful to consumers. The ability to obtain location information, as well as its accuracy, depends upon multiple variables in the wireless environment. Suggesting that certain carriers meet particular benchmarks would leave a false impression with consumers that a particular level of service can be expected on a specific call, regardless of circumstances. Consumer education regarding the inherent limitations of wireless location technology and the importance of providing location information to the PSAP whenever possible would be more effective.

## **VI. Conclusion**

Sprint supports the Commission's efforts to more closely examine the issues associated with 911 location accuracy. Sprint recommends that the Commission forgo adopting governing principles for the provision of automatic location information by VoIP providers and instead

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<sup>20</sup> *Id.* at par. 79.

<sup>21</sup> *Id.*

refer this issue to standards groups that would be equipped to address the many complexities presented by this issue. Sprint urges the Commission to carefully consider the coordination between parties that will be necessary to facilitate the delivery of automatic location information and ensure the parties are afforded adequate liability protections.

Respectfully Submitted,

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